

**SONY**

3-769-978-11 (1)

Stereo Cassette Deck

# TC-RX60ES

## **Operating Instructions**    page 2

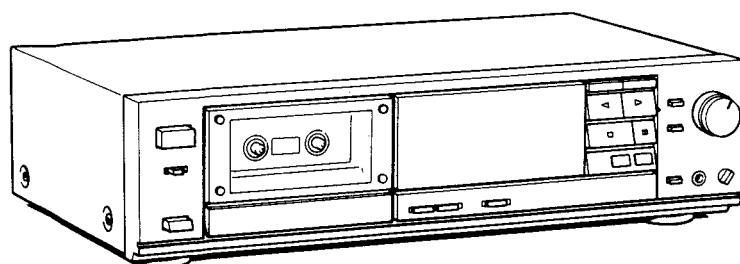
Before operating the unit, please read this manual thoroughly and retain it for future reference.

## **Mode d'emploi**    page 22

Avant la mise en service de l'appareil, prière de lire attentivement ce mode d'emploi que l'on conservera pour toute référence ultérieure.

## **Manual de instrucciones**    página 42

Antes de utilizar la unidad, lea este manual detenidamente y consérvelo para futuras referencias.



English

# WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

## NOTICE FOR THE CUSTOMERS IN THE UNITED KINGDOM

### IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral

Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

## Features

The TC-RX60ES is an auto-reverse cassette deck equipped with a laseramorphous magnetic alloy head using LC-OFC winding for recording and playback, and features the following functions.

- **Quick-reverse function** prevents tape transport on the leader tape.
- **The Dolby HX PRO\* system** improves the linearity of the tape's high range response during recording.

- **Easy-to-read digital linear counter** shows the elapsed recording or playback time.
- **AMS, blank skip and music scan functions** provide easy access to a desired selection.

\*Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.

"DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

# Table of Contents

## Getting Started

|                                              |   |
|----------------------------------------------|---|
| Features .....                               | 2 |
| Precautions .....                            | 4 |
| Operating voltage .....                      | 4 |
| Installation .....                           | 5 |
| Connections .....                            | 6 |
| Parts identification of the rear panel ..... | 6 |
| Notes on connections .....                   | 6 |
| Basic connection .....                       | 7 |
| Location of controls .....                   | 8 |

## Using Your Stereo Cassette Deck

|                                                                 |    |
|-----------------------------------------------------------------|----|
| <b>Playback</b> .....                                           | 10 |
| Locating the beginning of a selection during playback           |    |
| —Automatic Music Sensor (AMS) .....                             | 11 |
| Skipping a blank—Blank skip .....                               | 11 |
| Playing only the beginning of each selection—Music scan .....   | 12 |
| Playing back automatically after fast winding—Auto play .....   | 12 |
| Locating a desired position using the counter—Memory play ..... | 13 |
| <b>Recording</b> .....                                          | 14 |
| Recording level adjustment .....                                | 15 |
| Notes on cassettes .....                                        | 15 |
| Inserting a blank space during recording—Record muting .....    | 16 |
| Synchronized recording with a turntable system .....            | 16 |
| Timer-activated playback and recording .....                    | 18 |

## Maintaining Your Unit

|                   |    |
|-------------------|----|
| Maintenance ..... | 19 |
|-------------------|----|

## Getting into the Details

|                      |    |
|----------------------|----|
| Specifications ..... | 20 |
|----------------------|----|

## Troubleshooting

|                             |    |
|-----------------------------|----|
| Troubleshooting guide ..... | 21 |
|-----------------------------|----|

# Precautions

## On safety

- Before operating the unit, make sure that the operating voltage of your unit is identical with that of your local power supply.
- Should anything fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it will not be used for a long time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.
- The unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.
- The nameplate indicating operating voltage, power consumption, etc. is located on the rear.

## On operation

- When the unit is not used, turn the power off, to conserve energy and to extend the useful life of your unit.
- Because of the safety mechanism, the function buttons will not operate if the cassette holder is not completely closed, if there is no cassette, or if a cassette has been incorrectly inserted into the cassette holder.

## On head cleaning

The heads and tape path should be cleaned after 10 hours of operation. Dirty heads and a dirty tape path may cause:

- Loss of high frequency response
- Loss of sound volume
- Sound drop-out

If you have any questions or problems concerning your unit, please contact your nearest Sony dealer.

# Operating Voltage

Before connecting the unit to the power source, check that the operating voltage of your unit is the same as the local power line voltage.

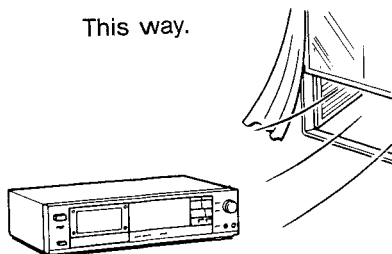
| Where purchased    | Operating voltage                                                                    |
|--------------------|--------------------------------------------------------------------------------------|
| European countries | Operates on 220 V AC (or 240 V AC adjustable by authorized Sony personnel), 50/60 Hz |
| United Kingdom     | Operates on 240 V AC (or 220 V AC adjustable by authorized Sony personnel), 50 Hz    |
| Canada             | Operates on 120 V AC, 60 Hz                                                          |

# Installation

## Notes on installation

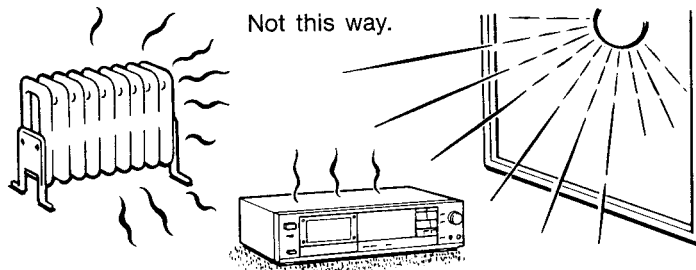
Place the unit in a location with adequate air circulation to prevent internal heat build-up in the unit.

This way.



Do not place the unit on a soft surface, such as a rug that would block the ventilation holes on the bottom.

Not this way.



Install the unit with the front panel facing toward you.

Do not install the unit:

- near heat sources such as radiators or air ducts.
- in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- in an inclined position.

**Do not throw away the carton and the packing material!**  
They make an ideal container when transporting the unit or shipping it for servicing.

# Connections

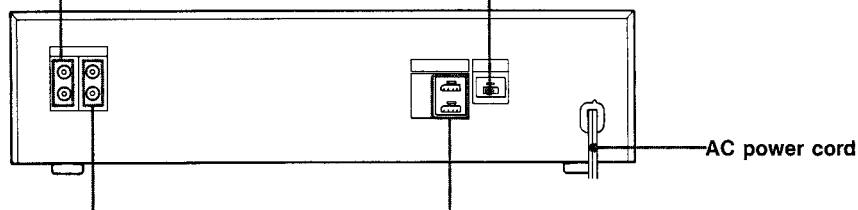
## Parts Identification of the Rear Panel

**LINE IN (line input) jacks** (phono jacks)  
Connect to the tape outputs (recording outputs) of an amplifier for tape recording.

**SYNC connector** (3-pin)  
For synchronized recording with a turntable, connect to the SYNC connector of the Sony turntable system. For further details, refer to the instruction manual of the optional Sony turntable system equipped with the SYNC connector.

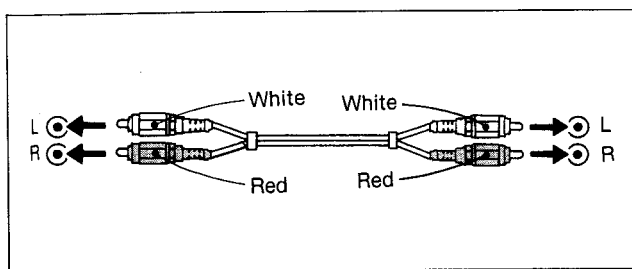
**LINE OUT (line output) jacks** (phono jacks)  
Connect to the tape inputs of an amplifier for playback.

**CONTROL S connectors** (4-pin)  
IN: Connect to the optional Sony RM-88 wireless remote control unit or the CONTROL S OUT connector of another piece of Sony equipment.  
OUT: Connect to the CONTROL S IN connector of another piece of Sony equipment.



## Notes on Connections

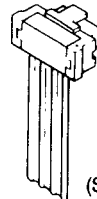
- Turn off the power to all equipment before making any connection.
- Note that the red plug of the supplied connecting cord is for right-channel (R) connection and the white plug for left-channel (L) connection.



- The connecting cords should be fully inserted into the jacks. A loose connection may cause hum pick-up.

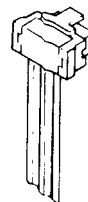
### Flat cord connection

Remote control cord (4-pin)



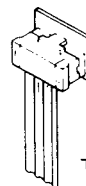
(Supplied)

Syncro remote control cord (3-pin)

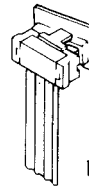


Supplied with the optional Sony turntable system

**Be sure to insert the cord firmly.**

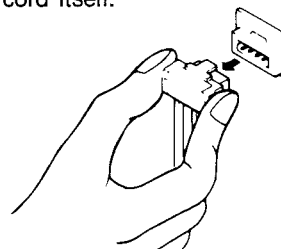


This way.

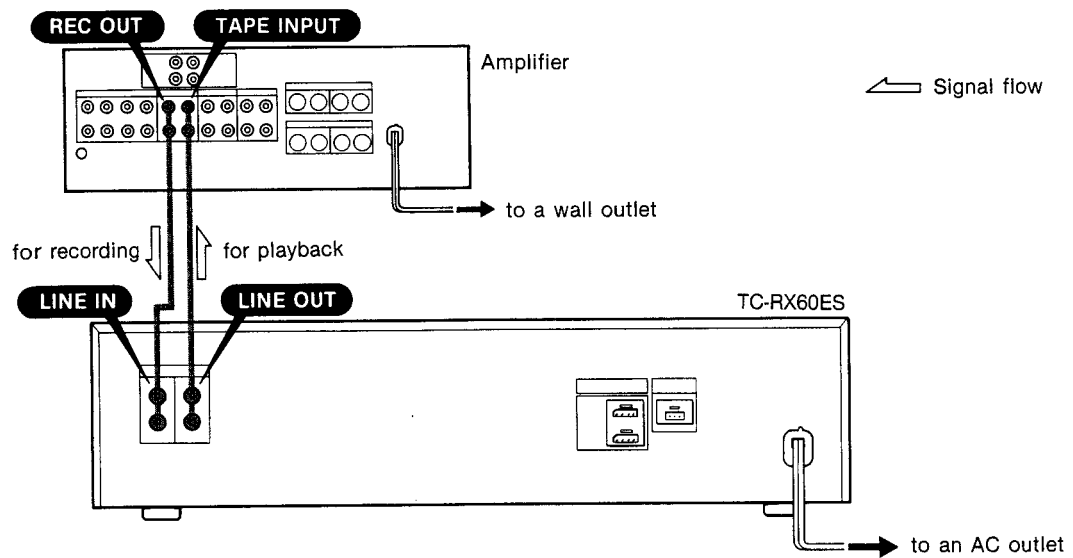


Not this way.

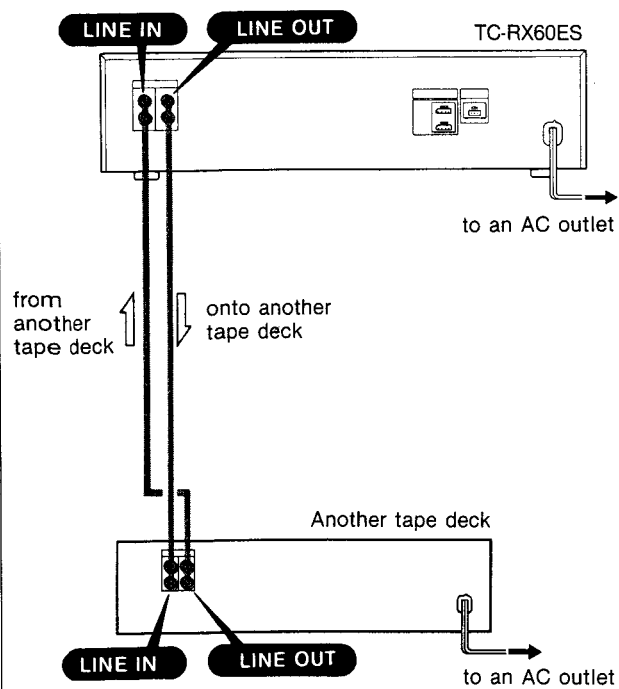
**To disconnect the cord, pull out the connector. Do not pull the cord itself.**



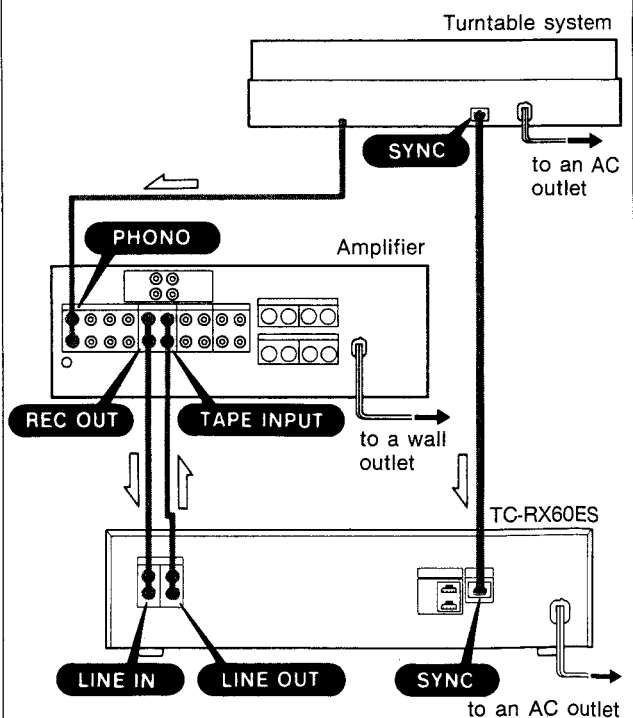
## Basic connection



## Connection for tape dubbing



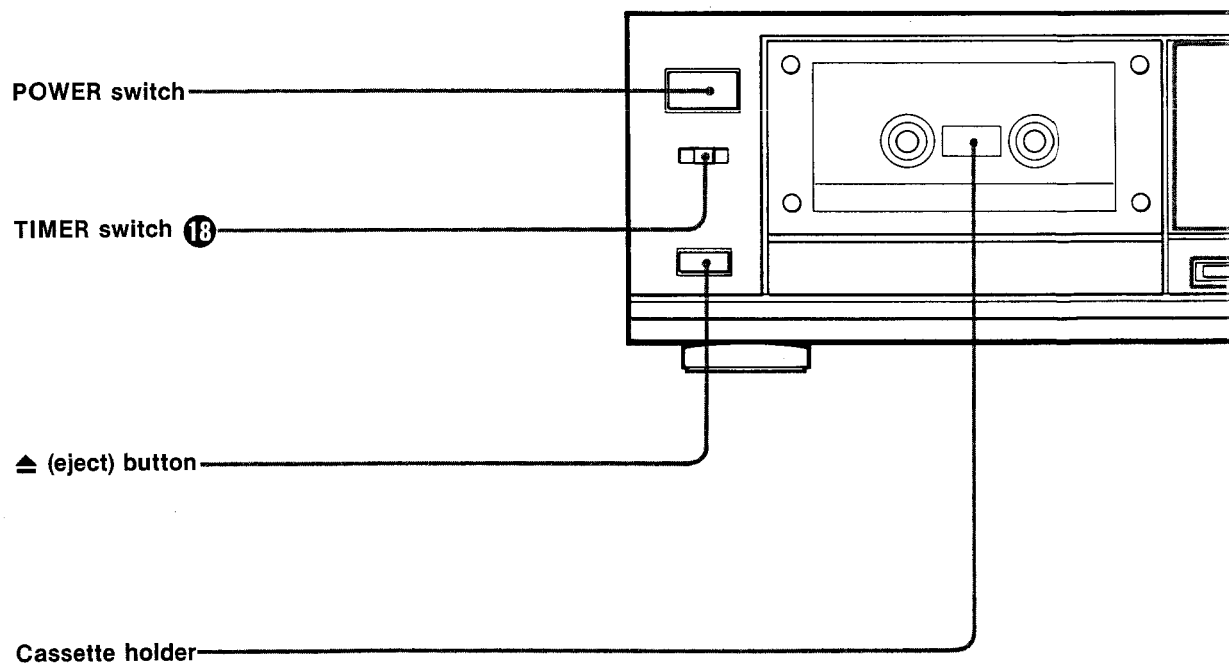
## Connection for synchronized operation with a turntable system



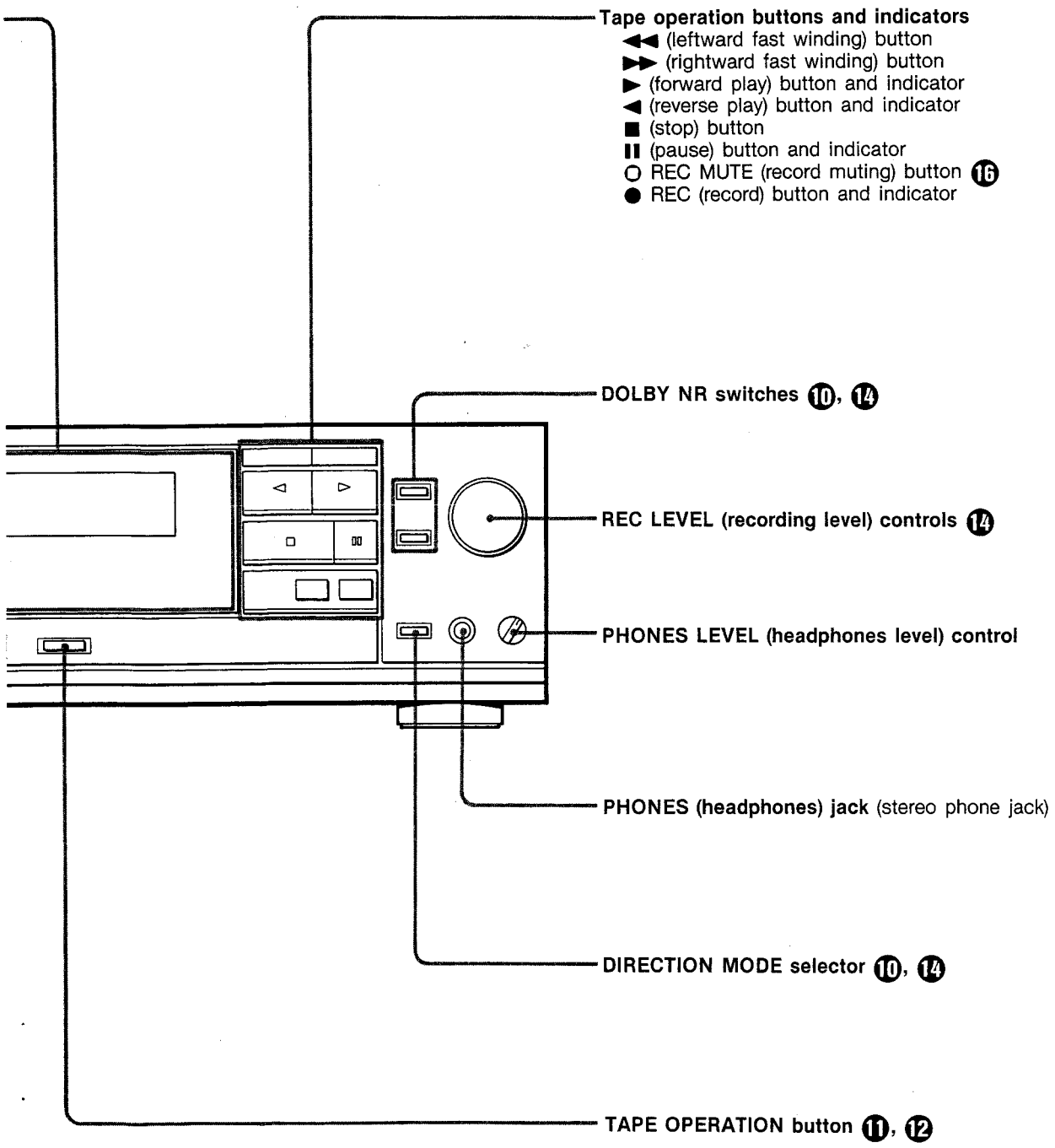
# Location of Controls

Refer to the pages indicated in ● for details.

**DISPLAY window** —  
PEAK LEVEL METERS  
LINEAR COUNTER  
DIRECTION indicators  
TAPE OPERATION indicators  
TAPE TYPE indicators

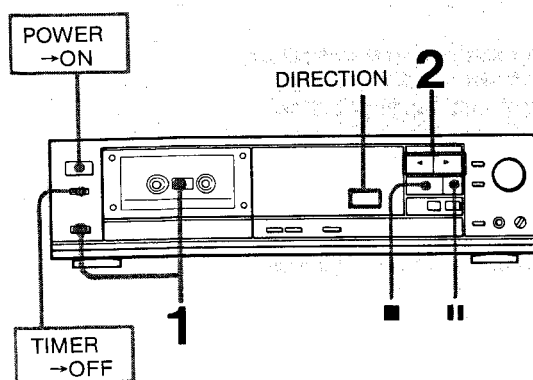


COUNTER RESET and MEMORY buttons 13 —



# Playback

Set the amplifier's function to tape monitor.



**1** Press **▲** to open the cassette holder and insert a recorded cassette.

**2** Start playback.

|                       |                  |
|-----------------------|------------------|
| From the front side   | Press <b>▶</b> . |
| From the reverse side | Press <b>◀</b> . |

## Stopping play

|                                  |                                                              |
|----------------------------------|--------------------------------------------------------------|
| To stop play                     | Press <b>■</b> .                                             |
| To stop for a moment during play | Press <b>  </b> .<br>To restart play, press <b>  </b> again. |

## How to set DIRECTION MODE selector

|                                       | Selector position             |
|---------------------------------------|-------------------------------|
| To play back one side of the cassette | <b>□</b> <b>↔</b> (released)  |
| To play back both sides continuously* | <b>▤</b> <b>↔</b> (depressed) |

\* After playing back five times, play stops automatically.

## How to use DOLBY NR switches

Set the DOLBY NR switches to the same position as was used when recording the cassette.

| Dolby NR system | Dolby OFF                       | Dolby B                        | Dolby C                        |
|-----------------|---------------------------------|--------------------------------|--------------------------------|
| Switch setting  | <b>□</b> OFF<br>Either position | <b>▤</b> ON<br><b>□</b> B-TYPE | <b>▤</b> ON<br><b>▤</b> C-TYPE |

## Side of the cassette being played back or recorded

The DIRECTION indicator illuminates to indicate the side of the cassette being played back or recorded.

|                                                        |                                                          |
|--------------------------------------------------------|----------------------------------------------------------|
| Front side<br>DIRECTION<br>REVERSE FORWARD<br><b>▷</b> | Reverse side<br>DIRECTION<br>REVERSE FORWARD<br><b>◁</b> |
|--------------------------------------------------------|----------------------------------------------------------|

## The head is reversed immediately when

The leader tape of the cassette is detected by the unit's infrared sensor. (Quick reverse function)

## In the following cases, the quick reverse function may not operate correctly

- Recording or playback is started within 10 seconds before the leader tape.
- The leader tape is striped or is such a dark color that infrared rays cannot pass through, or the cassette has no leader tape.
- The magnetically coated base tape is very thin, as in a C-120 cassette.

## Is it necessary to set the tape type being used?

No. Because the deck has an automatic tape type detection system. In recording or playback of TYPE I (normal), TYPE II (CrO<sub>2</sub>) and TYPE IV (metal) cassette tapes, this system automatically adjusts the equalization and bias current to the optimum setting for the type of cassette used. The current tape selection is indicated by the TAPE TYPE indicator.

## To switch to the recording mode during playback

Keeping **◀** or **▶** pressed, press **●**. This is useful when editing previously recorded material.

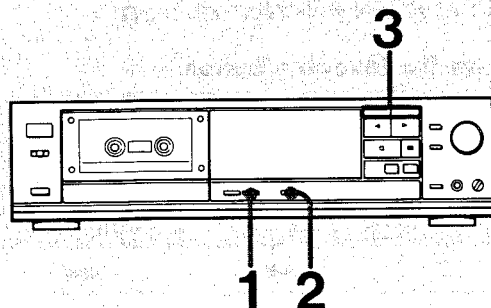
## The TIMER switch must be set to OFF because...

The TIMER switch makes the system ready for the timer recording and playback using the optional timer. If it is not set to OFF, recording or playback will start automatically when the power is turned on.

## What is Dolby NR system?

The Dolby NR (noise reduction) system reduces tape hiss noise in low level high frequency signals. The system boosts these signals in recording and lowers them in playback.

## Locating the Beginning of a Selection during Playback —Automatic Music Sensor (AMS)

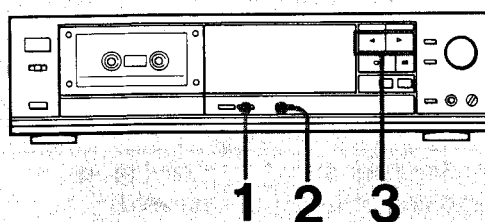


- 1 Make sure that the MEMORY indicator is not displayed. If it is, press **MEMORY**.
- 2 Press **TAPE OPERATION** so that the AMS/BLANK SKIP indicator lights up.
- 3 Check the **DIRECTION** indicator and press **◀** or **▶**.

| DIRECTION Indicator | Desired selection |                   |
|---------------------|-------------------|-------------------|
|                     | Next selection    | Current selection |
| ▶                   | ▶▶                | ◀◀                |
| ◀                   | ◀◀                | ▶▶                |

## Skipping a Blank—Blank Skip

This function is useful when the cassette to be played back has unnecessary blank portions.



- 1 Make sure that the MEMORY indicator is not displayed. If it is, press **MEMORY**.
- 2 Press **TAPE OPERATION** so that the AMS/BLANK SKIP indicator lights up.
- 3 Press **◀** or **▶**.  
The deck automatically goes into the fast winding mode where there is a blank of about 10 seconds or more.

### What is AMS?

It detects the blank space between selections and locates the beginning of a selection during playback. To assure correct operation of the AMS, there must be a blank of 4 seconds or longer between selections.

### If the ▶▶ or ◀◀ button is pressed immediately before the following selection

The AMS may locate the selection after the one immediately following.

### The AMS may not operate

- if there is noise in the space between selections
- if the space is less than 4 seconds long.

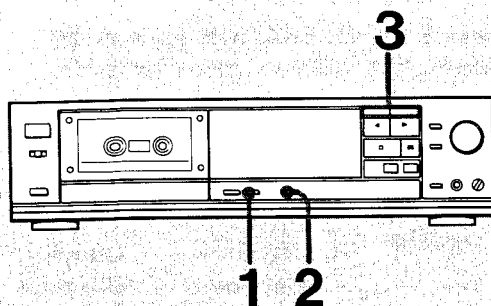
### The AMS will treat the following as blanks:

- a long pause in the music
  - a passage of low frequencies or very low volume
  - a passage of gradual increase or decrease of volume
- Should the above happen, press **TAPE OPERATION** to turn off the AMS/BLANK SKIP indicator.

### Note on the optional Sony RM-88 remote control unit

○ button of the RM-88 functions as the **TAPE OPERATION** button on the unit, as long as it is not used with ● button.

## Playing Only the Beginning of Each Selection—Music Scan

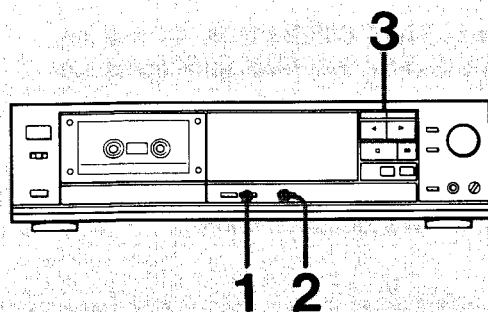


- 1 Make sure that the MEMORY indicator is not displayed. If it is, press **MEMORY**.
- 2 Press **TAPE OPERATION** so that the MUSIC SCAN indicator lights up.
- 3 Press the following button.

| DIRECTION Indicator | Desired selection |                               |
|---------------------|-------------------|-------------------------------|
|                     | Next selection    | Current or previous selection |
| ▶                   | ▶▶                | ◀◀                            |
| ◀                   | ◀◀                | ▶▶                            |

The beginning of each selection will be played back for 10 seconds one after another.

## Playing Back Automatically after Fast Winding—Auto Play



- 1 Make sure that the MEMORY indicator is not displayed. If it is, press **MEMORY**.
- 2 Press **TAPE OPERATION** so that neither the AMS/BLANK SKIP nor the MUSIC SCAN indicator lights up.
- 3

|                                                                |                              |
|----------------------------------------------------------------|------------------------------|
| To play from the beginning of the front side of the cassette   | Keeping ▶ pressed, press ◀◀. |
| To play from the beginning of the reverse side of the cassette | Keeping ◀ pressed, press ▶▶. |

After the tape is completely rewound, the deck will automatically start playback.

The indicator on the ▶ or ◀ button blinks during music scan and shows the following

While fast winding, the indicator blinks rapidly. And while playing back, it blinks slowly.

If you find the desired selection during music scan

Press ▶ or ◀ while the indicator on the ▶ or ◀ button is blinking slowly. And the playback starts.

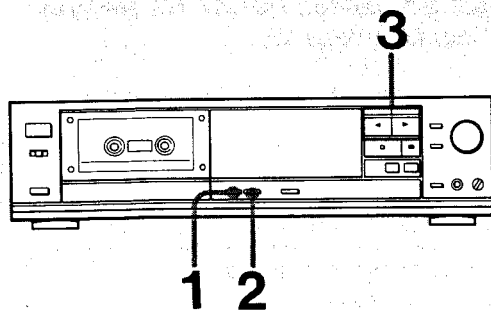
Music scan functions only on one side of a cassette

Even if you select the ◀ position with the DIRECTION MODE selector, the unit will automatically shut off at the beginning or the end of the side of the cassette on which the music scan function began.

If playback starts in the middle of the tape when you do auto play

If the MEMORY indicator is displayed, press MEMORY to turn the indicator off.

## Locating a Desired Position using the Counter—Memory Play



- 1 Press COUNTER RESET at the desired point while playing.**  
The counter will be set to 0.00.
- 2 Press MEMORY.**  
The MEMORY indicator will be displayed.
- 3 When you want to return to the desired point during playback, press the following:**

| DIRECTION Indicator | Operation        |
|---------------------|------------------|
| ▶                   | Press ◀◀ and ▶▶. |
| ◀                   | Press ▶▶ and ◀◀. |

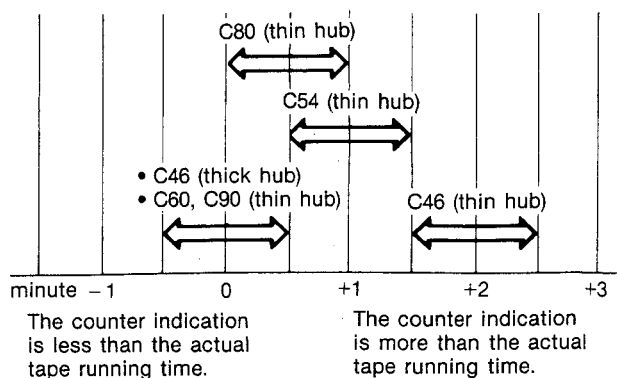
The tape will be rewound to around 0.00 and playback will start.

**Do not turn the power off while using the counter**  
When you turn the power off, the counter is reset to 0.00.

**When you press only the ◀◀ or ▶▶ button when locating the desired point**  
The tape will be rewound and the unit will stop at around 0.00. (Memory stop)

### The accuracy of the counter

This counter is not actually a digital clock, and thus the displayed figures are not exactly equal to the actual elapsed time. The accuracy will vary depending on the type of tape being used. This counter has been designed using Sony cassette tapes as a standard.

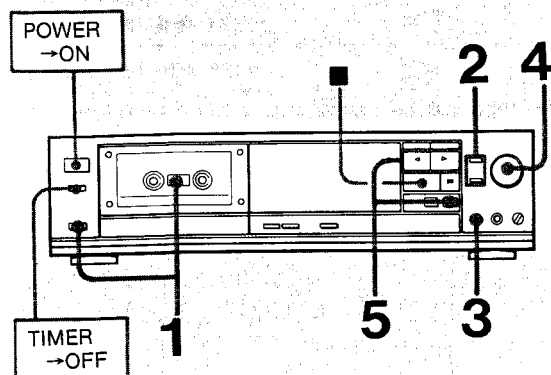


### Notes on the counter

- If necessary, verify the accuracy of the counter when using cassette tapes other than Sony's, or tapes of a special length.
- Pay attention to the length of the leader tape when recording.

# Recording

When the deck functions in the recording mode, previously recorded material will be erased.



**1** Press **▲** and insert a cassette on which to record.

**2** Select the desired DOLBY NR system setting. (See page 10.)

**3** Select the side(s) to be recorded:

|                                                                        | DIRECTION MODE setting |
|------------------------------------------------------------------------|------------------------|
| To record on one side                                                  | □ →                    |
| To record on both sides (from front side to reverse side) continuously | □ ↔                    |

**4** Adjust the recording level.

- 1) Press ●.
- 2) Play the program source to be recorded.
- 3) Adjust the recording level with REC LEVEL controls. (See next page.)

**5** Start recording.

| Side to be recorded           | Buttons pressed |
|-------------------------------|-----------------|
| Both sides or only front side | ● and ►         |
| Only reverse side             | ● and ◀         |

To stop recording, press ■.

The indicator on the ► or ◀ button blinks when ● is pressed...

Recording is possible only on the side(s) shown by the blinking indicator(s). If the cassette tab has been removed for the prevention of accidental erasure, the indicator does not blink.

If the side whose tab has been removed is selected for recording

The deck will start playback instead of recording.

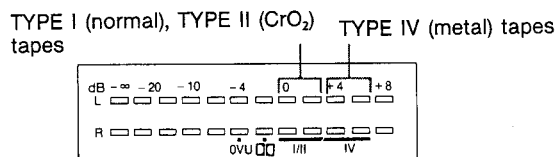
When you select ◁ with the DIRECTION MODE switch for recording

The deck always stops at the end of the reverse side of the tape, even if you select the ◁ position with the DIRECTION MODE switch.

## Recording Level Adjustment

Adjust the recording level according to tape type by observing the PEAK LEVEL METERS, referring to the following diagram.

### Recommended maximum PEAK LEVEL METER reading



Adjust the recording level as high as possible without causing distortion in the recorded sound. If the recording level setting is too high, the recording will be distorted; if it is too low, the tape will produce a hissing sound. If the program source to be recorded has many high frequency signals, set the level to a relatively low position.

## Notes on Cassettes

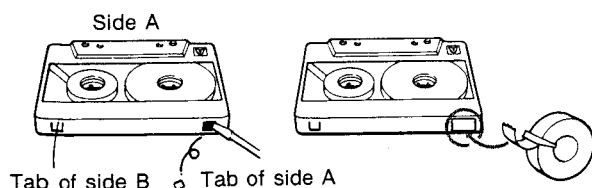
### To prevent accidental erasure

#### To protect side A recording

Break out the tab of side A.

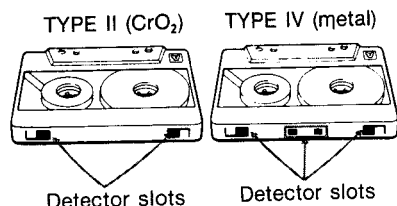
#### To reuse a cassette

Cover each slot with plastic tape.



### When using TYPE II (CrO<sub>2</sub>) or TYPE IV (metal) cassettes

Be careful not to cover the detector slots which are necessary for automatic tape type detection.



### C-120 cassettes are not recommended except when necessary for long continuous recording and playback

C-120 cassettes use extremely thin tape which tangles easily when the tape transport is stopped and started frequently.

### Cassette care

- Avoid touching the tape surface of a cassette, as any dirt or dust will contaminate the heads.
- Keep cassettes away from equipment with magnets, such as speakers and amplifiers, as erasure or distortion on the recorded tape could occur.
- Do not expose cassettes to direct sunlight, extremely cold temperatures or moisture.

### How to start recording more precisely

- 1 Press **II** after playing the program source to be recorded.
- 2 Keeping **●** pressed, press **▶** for front side recording or **◀** for reverse side recording.
- 3 Adjust the recording level.
- 4 Press **II** again when you want to start recording. Recording will start.

### The TIMER switch must be set to OFF because...

The TIMER switch makes the system ready for the timer recording and playback using the optional timer. If it is not set to OFF, recording or playback will start automatically when the power is turned on.

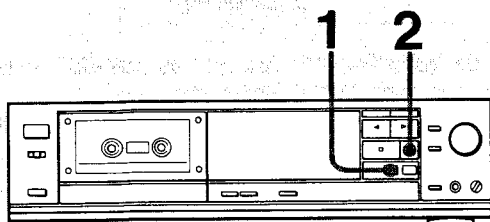
### To check the approximate remaining recording time on the tape

- 1 Press COUNTER RESET to set the counter to 0.00.
- 2 Advance the tape to its end using the appropriate fast winding button.  
The figure on the linear counter shows the approximate time remaining on the tape.

## Recording

### Inserting a Blank Space during Recording—Record Muting

You can insert a blank space in a tape to help you locate a selection (AMS function, see page 11). In addition, you can eliminate the unwanted portions of the recording material.



- 1 While recording, press  REC MUTE.**  
If you want the blank to be four seconds long, press and release immediately.  
If you want it to be longer, keep pressing for as long as you want.  
The  indicator flickers. No incoming signals are recorded on the tape.  
The tape stops automatically, and the indicator lights up.
- 2 Press  to resume recording.**

### Synchronized Recording with a Turntable System

Synchronized recording can be performed with a Sony turntable system equipped with the SYNC connector. For connection, see the connection diagram on page 7.

- 1 Prepare the turntable and amplifier for playing a record.**
- 2 Prepare the deck for recording. (See page 14)**
- 3 Press .**
- 4 Set the deck in the record stand-by mode.**

|                               |                                                                                                                                                                                                      |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| To record on the front side   | Keeping  pressed, press  . |
| To record on the reverse side | Keeping  pressed, press  . |

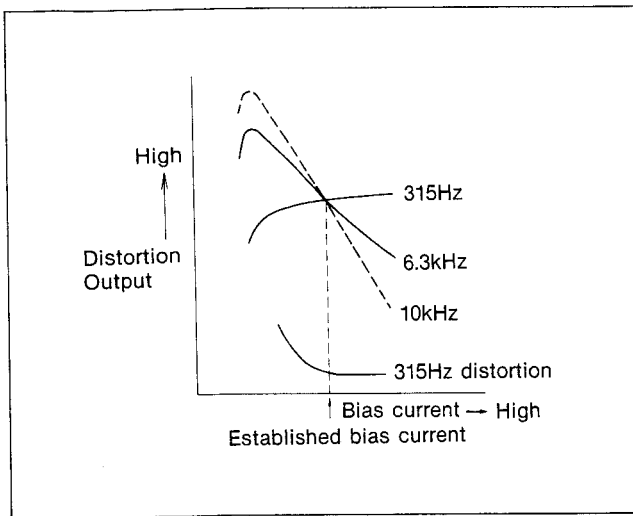
When the tonearm lowers onto the record, recording begins.

When the tonearm is lifted up, the deck automatically enters the record muting mode for four seconds and returns to the record pause mode.

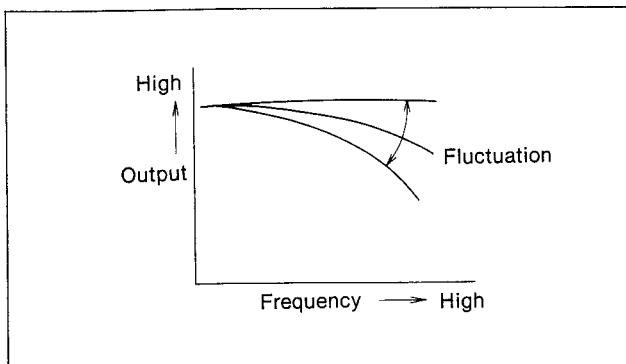
For details, see the instruction manual of the turntable system.

## DOLBY HX PRO system

This system provides improved linearity in high-range frequency response during recording. Tapes recorded with this system retain the same high quality even when played back on other tape decks.



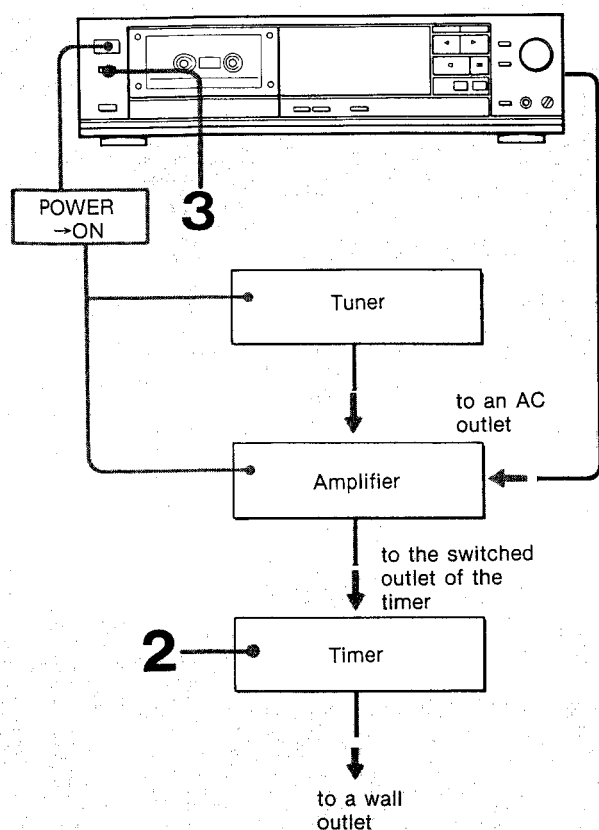
As shown above, characteristics such as output level and distortion differ widely according to the bias (high-frequency) current. In conventional system, the bias current is susceptible to variations in certain recording signals (see diagram below), and this can cause fluctuations in frequency response, distortion, or other unwanted characteristics.



With the Dolby HX PRO System, the effective bias amount added to the bias current is controlled in millisecond units to greatly reduced distortion, improving linearity in high-range response and ensuring high-intensity recording with minimal distortion and noise.

# Timer-Activated Playback and Recording

By connecting a commercially available timer, automatic playback or recording can be performed at a preset time.



- 1 Prepare the equipment for playback or recording** following the steps shown on page 10 or 14.
- 2 Set the timer to the desired time.**
- 3 Set the unit's TIMER switch to PLAY or REC.**  
Playback or recording will start at the preset time.

## When the timer-activated operation is completed

Set the TIMER switch on the unit to OFF. If the TIMER switch is left at REC, the unit will automatically enter the recording mode the next time the power is turned on, and the previously recorded material may be erased.

## Keep the POWER switch depressed on the tape deck

When the timer is set, the power of the deck will be cut off. However, be sure to leave the POWER switch depressed on.

## Check the direction mode indicator

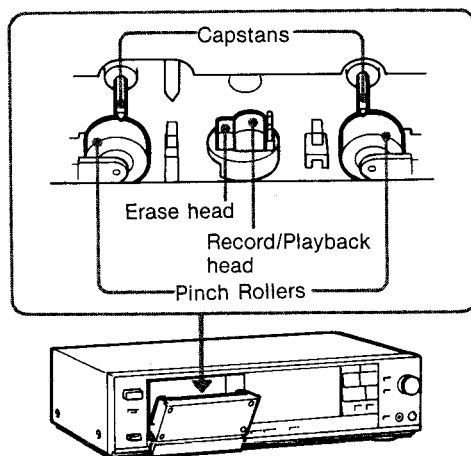
Timer-activated operation will start on the side shown by DIRECTION indicator.

# Maintenance

## Cleaning the Heads and Tape Path

Clean all surfaces over which the tape travels after every 10 hours of operation. However, cleaning before every recording is recommended to obtain high quality recording sound.

- 1 Press **▲** to open the cassette holder.
- 2 Wipe the heads, the pinch rollers and the capstans with a cleaning tip slightly moistened with tape cleaning fluid or alcohol.



## Demagnetizing the Heads

After 20 or 30 hours of use, or when you notice hiss and/or loss of high frequencies, the residual magnetism built up on the heads should be removed.

- 1 Turn off **POWER**.
- 2 Demagnetize the heads with any commercially available demagnetizer.  
Refer to the instruction manual of the demagnetizer for detailed instructions.

## Cleaning the Cabinet

Clean the cabinet, panel and controls with a soft cloth slightly moistened with a mild detergent solution.

### Important

Do not use any type of abrasive pad, scouring powder or solvents such as alcohol or benzene.

# Specifications

## Recording system

4-track 2-channel stereo

## Fast-forward and rewind time

Approx. 90 sec. (with HF-60 cassette)

## Bias

AC Bias

## Signal-to-noise ratio (NAB, at peak level)

| Cassette \ Dolby NR switch | OFF   | B-TYPE ON | C-TYPE ON |
|----------------------------|-------|-----------|-----------|
| TYPE IV (Sony METAL-ES)    | 59 dB | 66 dB     | 72 dB     |
| TYPE II (Sony UX-S)        | 58 dB | 65 dB     | 71 dB     |
| TYPE I (Sony HF-S)         | 54 dB | 61 dB     | 67 dB     |

## Total harmonic distortion

1.0 % (with Sony METAL-ES cassettes)

## Frequency response (DOLBY NR OFF)

|                                     |                                                                             |
|-------------------------------------|-----------------------------------------------------------------------------|
| TYPE IV cassette<br>(Sony METAL-ES) | 30–20,000 Hz ( $\pm 3$ dB, DIN)<br>30–15,000 Hz ( $\pm 3$ dB 0VU recording) |
| TYPE II cassette<br>(Sony UX-S)     | 30–17,000 Hz ( $\pm 3$ dB, DIN)                                             |
| TYPE I cassette<br>(Sony HF-S)      | 30–15,000 Hz ( $\pm 3$ dB, DIN)                                             |

Wow and flutter 0.05% WRMS (NAB)  
 $\pm 0.14\%$  (DIN)

## Inputs

|                              |                 |                     |
|------------------------------|-----------------|---------------------|
| Line inputs<br>(phono jacks) | Sensitivity     | 77.5 mV ( $-20$ dB) |
|                              | Input impedance | 50 kilohms          |

## Outputs

|                                         |                    |                                                                 |
|-----------------------------------------|--------------------|-----------------------------------------------------------------|
| Line outputs<br>(phono jacks)           | Rated output level | 0.44 V ( $-5$ dB) at a load impedance at 47 kilohms             |
|                                         | Load impedance     | Over 10 kilohms                                                 |
| Headphone output<br>(stereo phone jack) | Output level       | Variable from $-20$ dB to $-\infty$ dB at load impedance 8 ohms |

## General

### Power requirements

Model for European countries  
220 V AC (or 240 V AC adjustable by Sony personnel), 50/60 Hz  
Model for the United Kingdom  
240 V AC (or 220 V AC adjustable by Sony personnel), 50 Hz  
Model for Canada  
120 V AC, 60 Hz

### Power consumption

Model for European countries and for the United Kingdom: 21 W  
Model for Canada: 19 W

### Dimensions

Approx. 430  $\times$  118  $\times$  285 mm (w/h/d)  
(17  $\times$  4  $\frac{3}{4}$   $\times$  11  $\frac{1}{4}$  inches)

### Weight

including projecting parts and controls  
Approx. 4.8 kg (10 lbs 10 oz)

### Supplied accessories

Audio connecting cord (2)  
Remote control cord with 4-pin connectors (1)

Design and specifications subject to change without notice.

### Optional accessory

Wireless remote control unit RM-88

### Note

This appliance conforms with EEC Directives 76/889 and 82/499 regarding interference suppression.

Your dealer may not handle the above listed optional accessory. Please ask the dealer for detailed information about the optional accessories available in your country.

# Troubleshooting Guide

The following trouble checks will help you correct the most common problems encountered with your tape deck. Should any problems persist after you have made these checks, consult your nearest Sony dealer.

Before proceeding with these trouble checks, first check these basic points:

- The power cord is firmly connected.
- Amplifier connections are firmly made.
- Heads, capstans and pinch rollers are clean.
- The amplifier controls and switches are set correctly.

## FUNCTION BUTTONS AND TAPE TRANSPORT PROBLEMS

| Symptom                                                                  | Cause                                                                    | Remedy                                              |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------|
| Function buttons do not activate.                                        | Cassette holder is not fully closed.                                     | Close the holder completely.                        |
| Playback or recording begins just as the power is turned on.             | The TIMER switch is not set to OFF.                                      | Set the TIMER switch to OFF.                        |
| ● button does not activate.                                              | No cassette in the holder.                                               | Insert a cassette.                                  |
|                                                                          | Tab has been removed from the cassette.                                  | Cover the hole with plastic tape. (page 15.)        |
| Automatic shut-off mechanism activates before the tape comes to its end. | Tape is slack.                                                           | Take up the tape slack.                             |
|                                                                          | Cassette shell is deformed.                                              | Use another cassette.                               |
|                                                                          | The MEMORY function is activated.                                        | Press the MEMORY button to deactivate the function. |
|                                                                          | The inside of the cassette holder is illuminated by strong light.        | Remove the light source.                            |
| Excessively loud tape transport noise when rewinding or fast-forwarding  | This depends on the cassette used and is not a problem.                  | —                                                   |
| The cassette holder does not open.                                       | ▲ button was pressed immediately after the ◀, ▶ or ■ button was pressed. | Turn the power off, and then press the button.      |

## RECORDING AND PLAYBACK PROBLEMS

| Symptom                                                                                                | Cause                                                                                                                                                                 | Remedy                                                                    |
|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Quick reverse function does not operate.                                                               | DIRECTION MODE selector is released □ (↔).                                                                                                                            | Depress the selector and set to ▢ (↶).                                    |
| Recording or playback cannot be made or there is a decrease in sound level.                            | Record/playback and erase heads are either dirty or magnetized.                                                                                                       | Clean or demagnetize the heads.                                           |
|                                                                                                        | Improper connection                                                                                                                                                   | Make connections properly. (page 7)                                       |
|                                                                                                        | Improper setting of the amplifier controls                                                                                                                            | Set the amplifier controls to the appropriate positions.                  |
| Excessive wow, flutter or dropout                                                                      | Head, capstan or pinch roller is dirty.                                                                                                                               | Clean in accordance with instructions shown on page 19.                   |
| Incomplete erasure                                                                                     | Erase head is dirty.                                                                                                                                                  | Clean the erase head.                                                     |
| Increased noise or poor reproduction in high frequencies                                               | Head is magnetized.                                                                                                                                                   | Demagnetize the head.                                                     |
| Unbalanced tone in high frequencies                                                                    | Improper setting of the DOLBY NR switches.                                                                                                                            | During playback, set the switches to the same position used in recording. |
|                                                                                                        | The unit is placed near a television set.                                                                                                                             | Move the deck away from the television set.                               |
| The desired selection cannot be located even if you activate the AMS.                                  | There is noise in the space between selections.                                                                                                                       | —                                                                         |
|                                                                                                        | The space is less than 4 seconds long.                                                                                                                                | Press ○ to insert a longer blank space.                                   |
|                                                                                                        | The ◀◀ or ▶▶ button is pressed immediately before or after the beginning of the following selection.                                                                  | —                                                                         |
| Playback or fast-winding may begin in the middle of the selection when AMS or blank skip is activated. | The following will be treated as blanks:<br>—a long pause in the music<br>—a passage of low frequencies or very low volume<br>—gradual increase or decrease of volume | —                                                                         |

## NOISE

| Symptom            | Cause                                                                                                                                                           | Remedy                                                       |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Hum noise          | The deck is stacked on or under the amplifier.                                                                                                                  | Separate the units.                                          |
| Noise is recorded. | Recording was made near such equipment as a television set or a color monitor, and interference has affected the recording on the tape and the Dolby NR system. | Move the unit away from the television set or color monitor. |